<u>January 2011 HASP status report from the SKC Wide Field Camera team</u>

The SKC team still wishes to fly its HASP 2010 payload this year. Two of the students on the team last year are no longer on the team. One of these students graduated, and the other has switched his academic major and has internship commitments in the new major that prevent him from continuing with the SKC HASP team. The other five students from last summer's team are expected to continue with the project through the flight and subsequent data analysis. The current HASP student team is

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Tim Olson (tim_olson@skc.edu) and Thomas Trickel (thomas_trickel@skc.edu) will continue as faculty advisors.

The team has been working on two changes to the payload since last summer.

(1) Thermal vac testing last summer showed the temperature data set could be improved by changing some of the resistor values used in the voltage divider circuits used to measure temperature from the eight temperature sensors deployed within the payload, and redeploying three of the sensors. The temperature sensor circuit design allows for a configuration yielding accurate low temperature measurement, or else accurate high temperature measurement, by appropriate resistor value choices. For flight the eight sensors will be deployed this way:

DC-to-DC converter: two sensors, one for low temperature measurement and one for high temperature measurement.

FPGA: two sensors, one for low temperature measurement and one for high temperature measurement.

ambient air temperature within the payload box: two sensors, one for low temperature measurement and one for high temperature measurement.

3.3-V voltage regulator: one sensor for high temperature measurement

payload case: one sensor for high temperature measurement

SKC is buying a thermal vac chamber under DoD grant funding, and will test the improved temperature sensor array in that chamber later this winter.

(2) Last summer the payload used a rather crude algorithm for creating 40 kB thumbnail images that were too pixelated. A new JPEG encoder has been written that greatly improves the quality of the thumbnail images. The code was developed and tested on a laptop first and is currently being ported to the payload FPGA.